

first two are of little or no use economically, except perhaps, for their woods, and these are not so highly valued as those of other species; the *Q. Egilops*, however, which produces large acorns seated in very large cups, is valuable for the sake of these cups, which contain a large quantity of tannin, and are extensively used by tanners and dyers, being imported to a considerable extent from the Levant under the name of Valonia. *Q. infectoria* is also a valuable species, producing, most abundantly, the large shining brown galls known as Mecca galls, used for dyeing purposes, in the manufacture of ink, and in the preparation of tannic and gallic acids. The principal value of the oaks in Bosnia seems to be in their timber, the staple use of which is in the manufacture of staves for casks, immense quantities of which are exported. Amongst the pines occurring in the forests are *Pinus Laricio*, *P. maritima*, *P. halepensis*, and others, as well as the Scots Fir, *P. sylvestris*. Besides these are other forest trees of more or less value, so that if the forests were properly worked, they would not fail to prove of great value. At present, however, the right of cutting timber is held chiefly by foreign speculators, and has proved a source of wealth to many Austrians and Frenchmen who have embarked in it.

One of the most valuable products, both of Bosnia and Serbia, as at present developed, lies in their plum crops, many of the peasantry depending entirely on these fruits as the means of subsistence through a great part of the year. The plums, after being gathered, are mostly dried in the form of prunes, the secret or art of drying being known only to themselves. The Bosnian plums are considered of a better quality than those either from Serbia, Croatia, or Austria. A quantity of spirit is likewise prepared from these fruits. Amongst other vegetable products of the country may be included tobacco, potatoes, flax, hemp, walnuts; and amongst cereals, wheat, maize, barley, oats, rye, millet, &c. Wheat and maize are the principal food plants consumed in the country, some of the other products being exported in comparatively large quantities.

A notice of the resources of Serbia, however brief, could not be closed without a reference to the remarkable traffic in pigs, the value of which amounts to nearly one-half of that of the entire exports of the country. In one year 472,700 of these animals were exported from Serbia, the bulk of which are fattened at Steinbruch, near Pesth, in Hungary, where more than 500,000 pigs from various parts are fattened yearly. Their value is not on account of their flesh as an article of food, but exclusively for melting down for their fat.

From these notes it will be seen that in Serbia and Bosnia are numerous undeveloped natural resources, and, under a different system than that which now prevails, both forests and mines might be made much more productive.

J. R. J.

NOTES

THE French Association for the Advancement of Science will meet this year at Clermont-Ferrand. This meeting will possess unusual interest, as the Puy-de-Dôme Observatory will be opened for inspection for the first time to visitors. That establishment is now in operation, and the results of observations taken are regularly registered in the *Bulletin de l'Observatoire*. A large subvention has been voted by the Municipal Council of Clermont and by the Puy-de-Dôme department, a local Committee has been appointed for the reception of visitors, and the arrangement of excursions to the surrounding mountains, Mont Dore, and others. The session will be presided over by M. Dumas.

THE Council of the Yorkshire College of Science have added another subject to those taught at the College, by providing for

a chair of Civil and Mechanical Engineering. They have elected as Professor, Mr. George Frederick Armstrong, M.A., F.G.S., Asso. Inst. C.E., who has for the past five years occupied the chair of Civil Engineering and Applied Mechanics in the McGill University, Montreal.

THE French Minister of Public Instruction, *L'Explorateur* informs us, is occupied with the organisation of scientific missions having for their object the study of certain determinate points in philology, geography, history, and commerce, both in France and the rest of Europe, as well as in Africa and America. The number of these missions will be thirty-two; twenty-eight are already completely organised. Nine missions will be occupied with natural history; one of these will investigate specially the fauna and flora of Switzerland; four will undertake researches connected with medicine and hygiene, four others dealing with languages; twelve will be occupied with the history and special investigations relative to peoples which have disappeared, or nearly so, as well as to their remaining monuments. Finally, three missions will undertake astronomical and meteorological investigations.

THE following are the numbers of visitors to the Loan Collection of Scientific Apparatus during the week ending July 22:—Monday, 2,275; Tuesday, 2,466; Wednesday, 486; Thursday, 393; Friday, 441; Saturday, 2,770; total, 8,831. During the present week 12 demonstrations were given on Monday, 12 on Tuesday, 5 on Wednesday; 7 are to be given to-day, 5 to-morrow; and 4 on Saturday, including the daily lectures to science teachers.

M. SCHÜTZENBERGER has been appointed to succeed the late M. Balard in the Chair of Chemistry in the Collège de France.

AN International Congress of Geography will be held at Brussels on Sept. 11. All the governments have been invited by the King of the Belgians to send delegates. The object of this Congress is the organisation of an international scientific expedition to Central Africa.

THE "Report of the Radcliffe Observer" for the year ending June 30 last, shows that the work of the Observatory has been carried on with efficiency. In all departments much good work has been done, and it is satisfactory to notice that the "Third Radcliffe Catalogue" has been commenced at last. Mr. Main's observations confirm those of other observers with regard to the recent remarkable absence of spots from the sun.

A LETTER in the current number of the *Planter's Gazette* draws attention to the continued importation and sale of filth, under the name of tea, which trade is carried on under the eyes, so to speak, of the Government officials themselves. The writers say:—"We have recently seen samples of mouldy refuse and dust which is now being retailed at the east-end at the rate of 2 oz. for 1d., or equal to 8d. per pound, duty paid. We submitted the samples to an official occupying a responsible position in the city, but were informed that the Government could not interfere, as the rubbish had passed the Custom House. Three or four hundred packages of 'Maloo mixture' have been delivered from one of the up-town warehouses during the fortnight for shipment, we understand, to Rotterdam."

IN connection with the recent *Thunderer* disaster, we would draw attention to a lecture given to the Engineering Class in the University of Glasgow by Prof. James Thomson, "On the Principles of estimating Safety and Danger in Structures in respect to their Sufficiency in Strength." It is published by Maclehose of Glasgow.

A FRENCH barrister who died recently left by his will two large houses to the city of Paris, for the purpose of establishing a new municipal college. The houses have been sold for the sum

of 1,600,000 francs, and the municipal council is now busy carrying out the conditions of the will. It is said many improvements will be carried out in the new establishment.

A STATUE has been erected at Bayeux (Calvados) to M. de Caumont, who originated forty-two years ago the Congress of the French learned societies of the provinces. This year the meeting will take place at Autun (Haute-Marne) in the beginning of September.

LIEUT. CHRISTIE, R.E., writing to us from Madras with regard to the use of selenium in telegraphy, says that if we could do away with the man (or woman) signaller, and substitute a commutator actuated by a current of electricity generated by the action of light upon a piece of selenium, we should (supposing the sensitiveness of the selenium to be adequate) have a combination capable of enormously increased rapidity. The message to be transmitted would be first set up (by mechanical means) in the Morse character; in long and short *slits* in an opaque screen; and this perforated screen being passed rapidly between the selenium and a source of light, the currents of electricity would be generated which are required for actuating the commutator. The possibility of such a combination depends on the sensitiveness of selenium to the influence of light. Assuming the combination to be possible, the rapidity of signalling would seem to be limited only by either the mechanical conditions of the commutator (or relay), or the power of the printing instrument at the receiving station.

EVERYONE will be glad to hear of Mr. Stanley's safety, and of the success of the African Expedition, of which he is head. From the brief notice in yesterday's *Telegraph*, we learn that several despatches have been received from Mr. Stanley, the last dated April 24, 1876, from Ubagwe, in Unyamwezi, within fifteen days of Ujiji. Mr. Stanley further explored the Victoria Nyanza, and inflicted one of his regrettable "severe punishments" upon the people of Bambireh, for a former attack. The district between Victoria and Albert Lakes was explored, and a "strange tribe of pale-faced people" was met with in the "cold uplands" of a remarkable mountain, Gambaragara. He returned to Uganda, whence he set out to Ujiji, exploring the Kagera River, Speke's "Lake Windermere," and the hot springs of Karagwe. We regret to notice from a *Daily News* telegram that the Italian African Expedition has been badly treated by the "Emir of Zeila."

THE number of denizens of the Southport Aquarium has been lately increased by the birth of no less than 1,000 sea-horses in one of the tanks.

IN Prof. Loomis's "Contributions to Meteorology," fifth paper, just published in the *American Journal of Science and Arts*, an important point suggested is that when barometers are low and temperatures high in Iceland, barometers are high and temperatures low in Central Europe, and similarly that a like relation exists between the barometers and temperatures of the Aleutian Islands and those of the United States—the influence in both cases being most decided during the cold months of the year. The idea here thrown out is deserving of a thorough investigation by the facts of observation owing to its important bearings on weather-forecasting. It is shown in the same paper that, in the course of storms, the amount of rainfall is least when the pressure at the centre of the storm is increasing, or when the storm is diminishing in intensity; and the amount of rainfall is greatest when the pressure at the centre of the storm is decreasing, or when the storm is increasing in intensity, the effect being also most decided during the colder months of the year.

THE French Alpine Club will hold a General Congress at Annecy on August 13, 14, and 15. All the sections of the French Alpine Club will be present, and the English, Italian,

and Swiss Alpine Clubs are expected to send a large number of representatives.

THE Vienna earthquake, to which we referred last week, occurred on July 17 at 1.22 P.M. The principal seat of the commotion was Scheibbs, a small country place forty miles west of Vienna; almost every house in Scheibbs has been damaged. The area of the commotion was very large, equal to about two-thirds of England. It reached Austria proper, Moravia, part of Bohemia, and Hungary. The last earthquake in Vienna was on January 3, 1873. Fifteen instances of earthquake have been recorded in Vienna from the beginning of the thirteenth to the end of the eighteenth century. None of them produced any real damage, except those of September, 1590, and December 4, 1689.

THAT International Exhibitions have not quite failed to attract the attention of the world, is proved by the success which is attending the great undertaking at Philadelphia. A pamphlet of sixteen pages "The Forest Products of Michigan at the Centennial Exposition," by Prof. W. J. Beal, of the State Agricultural College, just received, is one of a shoal of similar essays which always emanate from these great shows, and which are often valuable contributions to the knowledge of the natural resources of the countries upon which they treat. Michigan, as is well known, is the head-quarters of the American timber trade; of this fact we are reminded that two-thirds of the best timber known in the New York, Philadelphia, and Boston markets is obtained from Michigan, besides which a good deal comes to Great Britain and Germany. Of North American building woods much in demand in the country may be mentioned pitch-pine, and the timbers of other species of the genus *Pinus*, while among ornamental woods that of *Acer saccharinum*, the sugar or bird's-eye maple, as well as the black walnut, *Juglans nigra*, are extensively used. With the natural characteristic belief in his own country's greatness the author compares unfavourably not only the forests of Great Britain but also those of every other part of the globe, South America included.

MR. G. E. DOBSON, of the Royal Victoria Hospital, Netley, has just issued a very useful monograph of the Asiatic Chiroptera, founded upon a personal examination of almost all the materials available for the study of the Asiatic members of this group both in India and in Europe. To it is added a catalogue of the specimens of bats contained in the collection of the Indian Museum, Calcutta. The confusion hitherto existing in this difficult group of mammals is very great, and Mr. Dobson has done excellent service in putting them to rights. The catalogue is printed in London by order of the Trustees of the Indian Museum.

THE veteran naturalist, Dr. R. Schomburgk, sends us his Report on the Progress and Condition of the Botanic Garden and Government Plantations at Adelaide, South Australia, for the year 1875. The Garden seems to be in a most flourishing condition, the copious and wide-spread rains of the past year having had a most beneficial influence upon it, as upon the country generally. The Zoological branch of the establishment has received many accessions, and a long list is given of plants added during 1875, to those already in cultivation in the Botanic Garden.

THE American naturalists have lately devoted their attention to "Guadeloupe"—not the West Indian Island commonly known by a similar name, but a small island lying off the coast of Lower California, 220 miles south-west of San Diego. Eleven land birds were found by Dr. Palmer upon Guadeloupe Island, and specimens of them were transmitted to the National Museum at Washington. It is a most noteworthy fact that *every one* of these land birds is distinct from those found on the neighbouring

mainland, although each of them has a continental representative more or less nearly related. Variation in Guadeloupe seems to proceed at a rapid pace.

WE have received the Ninth Annual Report of the Peabody Institute of Baltimore, from which we are glad to see that all departments of the Institute have been doing their work satisfactorily during the past year. We notice, from the librarian's report, that of the books taken out of the library a large proportion belonged to the various sciences.

MESSRS. STANLEY of New York and New Britain (U.S.), have devised a metre diagram, intended to supply a want long felt by all who undertake to study or teach the metric system. The diagram contains a full metre, with its various divisions and sub-divisions clearly indicated, and also an English yard with its sub-divisions, so that the two measures can be at once compared. To these are added explanations of the system, a variety of tables, equivalents, rules, &c., the whole forming an excellent apparatus for the effective teaching of this scientific method of measurement.

THE series of the *Bulletins* of the United States National Museum, prepared at the request of the Smithsonian Institution, and published by the authority of the Secretary of the Interior, already embraces some very interesting and important memoirs relating to the collections in the National Gallery. The first of the series, by Prof. Cope, contains generalisations as to the geographical distribution of reptiles. The second *Bulletin*, prepared by Dr. J. H. Kidder, U.S.N., consists of a history of the birds collected by him during the transit of Venus expedition on Kerguelen Island. This, besides describing new species, gives a great deal of information as to the habits of the gulls, petrels, penguins, &c., of that little-known region. The third *Bulletin* completes the notices of the natural history of Kerguelen Island by an article describing the eggs of the birds, together with a list of the plants, rocks, mammals, fishes, molluscs, and other representatives of the peculiar animal life of the South Seas. In the pamphlet is also an enumeration of the specimens collected by Dr. Kershner, of the navy, in New Zealand. The pamphlet concludes with a critical investigation, by Dr. Kidder and Dr. Coues, of *Chionis minor*, the lesser sheath-bill.

THE third edition of Prof. Snow's catalogue of the birds of Kansas has lately been published by the Kansas Academy of Science, and contains some important additions to the previous list. The present enumeration amounts to 294 species, making an addition of twenty-three species and one variety since the publication of the second edition in October, 1872. The number of species mentioned as breeding in the State is 136.

PROF. MARSH continues to find objects of interest in the immense collection of fossil vertebrates gathered by himself and his assistants in the West during the past ten years. We have already referred to his discovery of a new form of pterodactyl, characterised by the entire absence of teeth, and their probable replacement by a horny sheath like that of the bill of modern birds. He now announces two additional fossil birds possessing teeth implanted in sockets. One is a new species of the first division, *Hesperornis*, and the other forms the type of a new genus, *Lestornis* (*L. crassipes*), the remains of which indicated a large swimming bird, fully six feet in length from the bill to the end of the toes.

THE Catholic Universities seem to have been a failure in France. According to an official account published by Government, about a hundred pupils have been registered in law. The number of medical students is limited to a few dozen in medicine, and there are only eight in science. However, the Catholics are collecting funds with unabated spirit, and 3,000,000 francs are said to be in hand for opening a Law Academy at Marseilles.

FROM the Report of the Auckland Institute (New Zealand)

for 1875-76, we are glad to see that that society will soon have a new Museum building of its own. The Report contains a list of important papers which have been read at the Institute during the session. From New Zealand also comes the Report of the Auckland Acclimatisation Society, which, amid many discouragements, is doing good work by the introduction of salmon, trout, and various birds into the country.

THE Report of the Rugby School Natural History Society is the largest yet issued, and contains several papers highly creditable to the young members, and showing that their writers are in a fair way of training themselves to be good observers. Among other papers worthy of mention, are the following:—"On the Symmetry of Flowers and Inflorescence," by V. H. Velej; "On Drops," "On Sound," and "On Impressions," by H. F. Newall; "On the Effects produced by Shadows under Water," by H. N. Hutchinson. Appended are various sectional reports and ten plates illustrating the papers, eight of which are drawn by members of the Society. Altogether the Society is to be congratulated on the Report.

A LIST of papers read before the Priestley Club, Leeds, during its first session, October to June, 1875-76, has been published. Thirty-six papers have been read, all of them on subjects of great scientific importance.

MR. G. H. KINAHAN has published in a separate form his paper on "The Lagoons on the South-east Coast of Ireland," read before the Institution of Civil Engineers.

THE *Proceedings* of the Liverpool Naturalists' Field Club, for 1875-6, shows that that Society continues to do good and steady work. There is an interesting address by the President, the Rev. H. H. Higgins, on "The Names of Plants."

PART 4 of Vol. I. of the *Transactions* of the Watford Natural History Society contains a lecture, by Prof. Morris, on "The Physical Structure of the London Basin considered in its relation to the Geology of the neighbourhood of Watford;" a paper by Mr. R. A. Pryor on "The Supposed Chalybeate Spring at Watford, and on the Medicinal Waters in Herts," besides the rainfall in 1875, and miscellaneous notes and observations.

IN reference to Mr. C. G. O'Brien's letter (vol. xiv. p. 123), on the beautiful spring-trap arrangement of the stamens of *Kalmia*, a correspondent writes that the point has already been noted by Dr. Robert Brown, in his "Manual of Botany," p. 440.

THE following varieties have been added to the tanks of the Royal Westminster Aquarium during the past week:—Tope, or White Hound (*Galeus canis*), Sting Ray (*Trygon pastinaca*), Red Mullet (*Mullus surmulletus*), Boar-fish (*Capros aper*), Comber, or Smooth Serranus (*Serranus cabrilla*), Pope, or Ruff (*Acerina cernua*), Barbel (*Barbus fluviatilis*), English Carp (*Cyprinus carpio*), presented by Mr. W. R. Killick; Sea Cucumbers (*Holothuria niger*).

THE additions to the Zoological Society's Gardens during the past week include eight Jameson's Gulls (*Larus jamesoni*) from Australia, presented by Mr. A. H. Jamrach; a King Vulture (*Gyparchus papa*) from Tropical America, two South American Little Bitterns (*Butorides cyanurus*) from South America, a Green-billed Toucan (*Ramphastos discolorus*), four Sayaca Tanagers (*Tanagra sayaca*), six Festive Tanagers (*Calliste festiva*), six All-green Tanagers (*Chlorophonia viridis*), two Violet Tanagers (*Euphonia violacea*) from Brazil, a Brown Howler (*Mycetes fuscus*) from Panama, a Madagascar Squirrel (*Sciurus madagascarensis*) from Madagascar, purchased; two Australian Bustards (*Eupodotis australis*) from Australia, deposited; an Eland (*Oreos canna*), nine Amherst's Pheasants (*Thaumalea amherstie*), thirteen Gold Pheasants (*Thaumalea picta*), bred in the Gardens.